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ABSTRACT

This paper argues for detailed, written carpeting specifications to assure that schools obtain quality products at competitive prices. The advantages of and specifications for school carpeting are given. A sample written specification contains items on: scope, general features, materials, acoustic characteristics, identification and acoustic properties, and installation. A list of carpeting term definitions concludes the article. (MLF)

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INFORMATION CONCERNING PREPARATION OF SPECIFICATIONS FOR CARPETING

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Carefully prepared, accurate and complete carpet specifications are important to the school system, architect, and bidder. Detailed, written specifications may prevent misunderstanding among these parties and help to insure that competitive bidders are bidding on the same quality product.

Carpet fibers may be classified in two general categories - natural and synthetic. Wool was for many years the major carpet fiber. However, in recent years the synthetics are being used to a considerable extent. The major synthetics are the continuous filament nylon and acrylic fibers. The acrylics are more like wool in appearance. Acrylics wear well and are easy to spot clean because the fiber does not readily absorb moisture. Continuous filament nylon is very durable.

All carpets are not of the same quality. Inexpensive carpets may be constructed of inferior yarn, may be made with skimpy dyes and may not have been properly inspected at the mill. Consequently, they will become difficult to maintain and will become very unsightly.

Advantages of the use of soft floor covering in schools include a better environment for learning, greater acoustical control, and lower

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maintenance costs. The acoustical qualities of carpeting permit more flexibility in the design of new schools by allowing more openness and the use of visual dividers.

Major requirements for school carpeting are as follows:

1. Synthetic fiber (such as acrylic) of at least 42 ounces face weight per square yard
2. An all hair pad of not less than 40 ounces per square yard
3. A noise reduction coefficient of about . 45

The all-hair pads are preferable to rubber or foam pads, whether the latter be attached to the carpet or separate. All hair pads are more durable, provide greater protection for the carpet, and improve acoustical conditions.

Specifications should require carpeting in widths of at least 9 feet.

SAMPLE FOR WRITING CARPET SPECIFICATIONS

A. Scope

1. Carpet contractor shall furnish all labor and materials required to provide and install carpet, as shown on drawings and specified herein; and shall coordinate his work with general contractor's construction schedule.

B. General

1. Installation of carpet should be by carpet workmen approved by the manufacturer so as to have adequate experience in commercial installation.
2. Carpet remnants, useable scrap, and overage should be packaged, identified and delivered to the owner.
3. The successful bidder should provide exact samples to architects for approval.
4. The successful bidder, upon request of architect, shall supply a complete color selection of samples of carpet on which he has based his bid.

C. Materials

1. Materials shall be subject to normal carpet industry manufacturing tolerances of plus or minus 5 percent.
2. Pad - at least 40 ounces per square yard all-hair carpet pad with burlap mesh center reinforcement
3. Carpet - colors as selected by architect; carpet shall meet the following minimum basic requirements:
   a. Face Yarn - Acrylic, such as Acrilan, or an equivalent synthetic that will give proper sound absorbence, 3 ply yarn
   b. Face Weight - 42 ounces per square yard

c. Type - Woven or tufted

d. Pile Height - (Above top of backing) 0.250"

e. Wires or (rows) per inch - 8

f. Pitch - 216/27" width

g. Chain - Cotton

h. Filling - Jute and/or Cotton

i. Stuffer - Jute and/or Cotton

j. Back Coating - To provide tuft bond of 80 ounces

4. Carpet Colors - as selected by architect. Bidding contractors will submit their bids on basis of single color pattern of carpet being selected for installation throughout building.

D. Acoustic Characteristics

1. Acoustical characteristics listed below are minimums required. Carpet provided for this project, when tested on at least 40 ounces all hair carpet shall meet or exceed these minimums.

a. Noise reduction coefficient 45

b. Sound absorption coefficient*

at 125	(cycles per second).....	.04
at 250	(cycles per second).....	.20
at 500	(cycles per second).....	.70
at 1000	(cycles per second).....	.50
at 2000	(cycles per second).....	.45
at 4000	(cycles per second).....	.54

2. Descriptions listed under "C" for carpets list minimum physical characteristics required; specifications for carpet will be up-dated if necessary to provide acoustic characteristics required.

3. Acoustical tests shall be made by Reverberation Chamber method (as used in National Bureau of Standard, Washington, D.C.)

E. Identification and Acoustic Properties

1. Bidding contractors shall state the following information regarding each carpet proposed:

   a. Carpet manufacturer

   b. Manufacturer's identification of carpet

   c. Noise reduction coefficient of carpet

2. Bidding contractors shall submit, with their proposal, the following information regarding each carpet they are proposing to supply.

   a. Physical characteristics, face yarn, face weight, type construction, etc., as described under "C" above

   b. Test report from an acceptable testing lab ratory showing N.R.C. and Sound Absorption Coefficients at 125, 250, 500, 1000, 2000, and 4000 cycles per second. Tests for acoustic characteristics shall be as described under "D" above.

F. Installation

1. The floor must be swept clean and repaired where necessary. Provide tackless strip along all areas where carpet meets floor tile. Anchor tap down metal with concrete pins spaced no more than four inches apart.
2. The pad should be installed with seams at right angle to carpet seams. Anchorage of pad and seam treatment as recommended by pad manufacturer.
3. All carpet seams shall be joined in a neat and sturdy manner. Carpet shall be stretched and anchored securely at tackless strips and tap down metal edge strips.
4. Carpet contractor shall repair any and all damage, done by him or his workmen, to owner's property.

DEFINITIONS

Backing - The foundation or underside of the carpet that secures the pile yarns in position and provides a firm foundation.

Broadloom - Refers to any carpet woven seamless on a broadloom in widths of 9 feet or more.

Construction - The method by which the carpet is made.

Cycles Per Second - Number of recurrences of a periodic vibration in one second. The more cycles per second, the higher the pitch.

Denier - A system of yarn count used by synthetic fiber industry. One denier equals 279,033 yards per ounce. To find the yards per ounce divide 279,033 by the denier number.

Jute - The fiber obtained from the inner bark of a tall, slender Asiatic herb. It is shredded and spun into strong, durable yards which are used as stuffer and filling to give bulk, strength and stiffness to the carpet backing.

Noise Reduction Coefficient - The percentage of the noise reduction.

Pile - The raised loops or tufts, cut or uncut, on the surface of the carpet.

Pile Height - The height of pile measured from the top surface of the back to the top surface of the pile.

Pitch - The number of warp yarns per inch of width, visible on the back, usually expressed in relation to the standard 27 inch width. Pitch is indicative of the closeness of the weave in one direction.

Ply - One strand of yarn thickness

Sound Absorption Coefficient - The percentage of reduction of airborne sound in the room in which the sound originates.

Warp - A series of threads or yarns running lengthwise in the carpet.

Wires - The number of wires, or rows, to an inch lengthwise is an indication of quality.

Yarn Weight - Ounces per square yard of carpet.